



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/531,536	04/15/2005	Anatoly Anatolievich Kudryavtsev	37074-01	1410

7590 07/19/2007
Nexsen Pruet
PO Box 10107
Greenville, SC 29603

EXAMINER

NGUYEN, VINCENT Q

ART UNIT	PAPER NUMBER
----------	--------------

2858

MAIL DATE	DELIVERY MODE
-----------	---------------

07/19/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,536

Applicant(s)

KUDRYAVTSEV ET AL.

Examiner

Vincent Q. Nguyen

Art Unit

2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on response 6/28/2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) 1-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 21-25, 31-35 and 37-41 is/are rejected.
- 7) ☒ Claim(s) 26-30 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a). Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Claims 1-20 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 6/28/2007.

The traversal is on ground that: "Applicants vigorously disagree with the restriction and cite the Office's expanded explanation at page 2 as further support for their objection. For example, the statement that "the step of an ionization of impurity atoms and molecules in their collisions with particles can be ... detected by a laser" is both unsupported and highly speculative. A document supporting the use of a laser as a device for detection of ionization step is respectfully solicited. Regardless, Applicants explicitly use UV light everywhere in this application (claims 9, 10, 15, 29, 30, 35, 41) and laser radiation (claims 8, 28). Thus Examiner's mention of UV light doesn't form "another and materially different device" as required by MPEP #806.05(e). Reconsideration is requested". Applicant is respectfully reminded that claims 9, 10, 15, 29, 30, 35, 41 are dependent claims. Therefore the claims 9, 10, 15, 29, 30, 35, 41 are not proper as defined in MPEP 806.

The requirement is still deemed proper and is therefore made FINAL. Claims 1-20 are withdrawn from further consideration.

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 21-24, 31-35, 37-41, are rejected under 35 U.S.C. 102(b) as being anticipated by Sun et al. (6,225,653).

With respect to claims 21-23, 31-35, 37-41, Sun et al. discloses an ionization detector for the analysis of the impurities composition in a main gas, comprising (a) an ionization chamber (36) filled with said main gas and impurities mixture and, at least, two electrodes (48-52) at least one being an anode and one being a cathode (See also the prior art of figure 1 for the anode and cathode) inside of said chamber 36, wherein said main gas pressure and the ionization chamber geometry being chosen in such that a distance from any point inside of said ionization chamber to nearest chamber wall or one of said electrodes is less than a mean displacement of electrons before they lose the chosen portion of their kinetic energy (The position of the electrodes less than a mean displacement is inherent from figure 3, 4, and 5A to collect the electron and ions; Sun et al.'s col. 4 lines 33-50); (b) an equipotential space provided at the region of said ionization chamber where said impurities ionization occurs (Col. 4 lines 33-50); (c) a

power source (54) generating particles with definite energy to ionize said impurity atoms or molecules; (d) a measuring circuit (56) to detect electric current as a function of the voltage applied to said electrodes (48-52) wherein said measuring system is capable of determining the amount of electrons with characteristic energies produced during the ionization of said impurities (See electrode 52 through out the disclosure and figures 2-5).

With respect to claim 24, Sun et al. does not explicitly disclose main gas pressure varies from 10 to 10^5 Pa and more. However, that pressure is typical to the main gas.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sun et al. (6,225,633) in view of Tooru et al. (5,320,577).

With respect to claim 25, Sun et al. disclose every subject matter recited in the claim except for measuring system is designed to find second derivative of the current dependence on the voltage applied to determine the amount of electrons with the characteristic energy values.

Tooru et al. discloses an air conditioner control device, which including a gas sensor for detecting atmosphere contamination (Col. 10 lines 40-47) and further discloses a second derivative for the purpose of enhancing the accuracy.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the second derivative as taught by Tooru et al. into the system of Sun because Tooru taught that: "The linear change of the sensor output generates a large noise in the first derivative. However, it does not generate any noise in the second derivative." (Tooru's col. 7 lines 2-5).

Allowable Subject Matter

6. Claims 26-30, 36, are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

7. Applicant's arguments filed 6/28/2007 have been fully considered but they are not persuasive.

In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., Sun cannot "distinguish methane from hydrogen sulfide" or "chemical identification is achieved") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to Applicant's argument that: "The citation of Sun et al. at Col. 4, lines 33-50 says nothing about an equipotential space or gas pressure in relation to ionization chamber geometry and electrons energy relaxation length (i.e., "a mean displacement of an electron before it loses a given portion of its kinetic energy" according to feature (a) claim 21 of the present application)". Sun et al. discloses (Col. 4 lines 33-50) the arrangement of electrodes relative to the chamber (36). Applicant is respectfully reminded that, the claim does specifically claim the distance, any distance taught by Sun et al. reads on the claim since kinetic energy lose energy as some work is done to bring the body from rest to a particular state of motion. Thus, before being collected at detector (48), the electrons lose energy compared to the energy brought the motion.

In response to Applicant's argument that: "The Office finds, at Sun et al., "a measuring circuit, wherein said measuring system is capable of determining the amount of electrons with characteristic energies produced ... " (page 4, lines 1-5 from bottom of the Office Action). To the contrary, one cannot find in Sun et al. any word about "determining the amount of electrons with characteristic energies" (i.e., electrons energy analysis). Sun et al. measure unresolved total photo-current only and do not teach anything about electrons energy measurement. However electrons energy analysis is the feature (d) claim 21 of the present application"

As examiner interpreted in the rejection above: "(d) a measuring circuit (56) to detect electric current as a function of the voltage applied to said electrodes (48-52) wherein said measuring system is capable of determining the amount of electrons with

characteristic energies produced during the ionization of said impurities (See electrode 52 through out the disclosure and figures 2-5). " Because the current is the flow of charge carriers (holes or electrons) through a conducting wire or crystal (Electron is the negatively charged component of an atom and the unit of negative electrical charge that makes up a current), the measuring the photo-current as taught by Sun adequately read on the claim.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

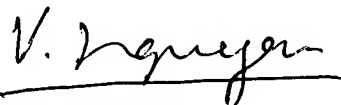
Contact Information

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Q. Nguyen whose telephone number is (571) 272-2234. The examiner can normally be reached on 8:30-5:00.

Art Unit: 2858

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Hirshfeld can be reached on (571) 272-2168. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


July 13, 2007

Vincent Q. Nguyen
Primary Examiner
Art Unit 2858